**Array---**

1. Write a Java program to find duplicate values in an array of integer values.
2. Write a Java program to find common elements between two arrays (string values).
3. Write a Java program to remove duplicate elements from an array.
4. Write a Java program to find the second largest element in an array.
5. Write a Java program to find all pairs of elements in an array whose sum is equal to a specified number.
6. Write a Java program to find the number of even and odd integers in a given array of integers.
7. Write a Java program to compute the average value of an array of integers except the largest and smallest values.
8. Write a Java program to remove duplicate elements from a given array and return the updated array length.
   Sample array: [20, 20, 30, 40, 50, 50, 50]
   After removing the duplicate elements the program should return 4 as the new length of the array.
9. Write a Java program to create an array of its anti-diagonals from a given square matrix.
   Example:
   Input :
   1 2
   3 4
   Output:
   [
   [1],
   [2, 3],
   [4]
   ]
10. Write a Java program to check if a sub-array is formed by consecutive integers from a given array of integers.
    Example:
    Input :
    nums = { 2, 5, 0, 2, 1, 4, 3, 6, 1, 0 }

**Output:**
The largest sub-array is [1, 7]
Elements of the sub-array: 5 0 2 1 4 3 6

11. Given two sorted arrays A and B of size p and q, write a Java program to merge elements of A with B by maintaining the sorted order i.e. fill A with first p smallest elements and fill B with remaining elements.
Example:
Input :
int[] A = { 1, 5, 6, 7, 8, 10 }
int[] B = { 2, 4, 9 }
Output:
Sorted Arrays:
A: [1, 2, 4, 5, 6, 7]
B: [8, 9, 10]

12. Write a Java program to find the maximum product of two integers in a given array of integers.
Example:
Input :
nums = { 2, 3, 5, 7, -7, 5, 8, -5 }
Output:
Pair is (7, 8), Maximum Product: 56

13. Write a Java program to rearrange a given array of unique elements such that every second element of the array is greater than its left and right elements.
Example:
Input :
nums= { 1, 2, 4, 9, 5, 3, 8, 7, 10, 12, 14 }
Output:
Array with every second element is greater than its left and right elements:
[1, 4, 2, 9, 3, 8, 5, 10, 7, 14, 12]

14. Write a Java program to find the maximum difference between two elements in a given array of integers such that the smaller element appears before the larger element.
Example:
Input :

nums = { 2, 3, 1, 7, 9, 5, 11, 3, 5 }
Output:
The maximum difference between two elements of the said array elements
10

15. Write a Java program to find the minimum subarray sum of specified size in a given array of integers.
Example:
Input :
nums = { 1, 2, 3, 4, 5, 6, 7, 8, 9,10}
Output:
Sub-array size: 4
Sub-array from 0 to 3 and sum is: 10

**String-----**

1. Write a Java program to print all permutations of a given string with repetition.

**Sample Output:**

```
The given string is: PQR
The permuted strings are:
PPP
PPQ
PPR
...
RRP
RRQ
RRR
```

2. Write a Java program to find the length of the longest substring of a given string without repeating characters.

**Sample Output:**

```
Input String : pickoutthelongestsubstring
The longest substring : [u, b, s, t, r, i, n, g]
The longest Substring Length : 8
```

**3. Write a Java program to print a list of items containing all characters of a given word.**

**Sample Output:**

The given strings are: rabbit   bribe   dog
The given word is: bib

The strings containing all the letters of the given word are:
rabbit
bribe

**4.  Write a Java program to reverse words in a given string.**

**Sample Output:**

The given string is: Reverse words in a given string
The new string after reversed the words: string given a in
words Reverse

**5. Write a Java program to remove "b" and "ac" from a given string.**

**Sample Output:**

The given string is: abrambabasc
After removing the new string is: aramaasc

**6.  Write a Java program to count and print all duplicates in the input string.**

**Sample Output:**

The given string is: w3resource
The duplicate characters and counts are:
e  appears  2  times
r  appears  2  times

**7. Write a Java program to check if two given strings are rotations of each other.**

**Sample Output:**

The given strings are: ABACD  and  CDABA

The concatination of 1st string twice is: ABACDABACD
The 2nd string CDABA  exists in the new string.

Strings are rotations of each other

**8. Write a Java program to read two strings append them together and return the result. If the strings are different lengths, remove characters from the beginning of the longer string and make them equal lengths.**

**Sample Output:**

The given strings is: Welcome and home
The new string is: comehome

**9. Write a Java program to check whether a specified character is happy or not. A character is happy when the same character appears to its left or right in a string.**

**Sample Output:**

The given string is: azzlea
Is z happy in the string: true

The given string is: azmzlea
Is z happy in the string: falses

**10.  Write a Java program to test if a string contains only digits. Returns true or false.**

**Sample Output:**

First string:

131231231231231231231231231212312312
true

Second string:
13123123123Z1231231231231231212312312
false